KONDRASHKOV, Aleksey Vasil'yevich; BARINOV, V.A., professor, redaktor; [illegible], A.I., redaktor izdatel'stva; KUZ'MIN, G.M., tekhnicheskiy redaktor

[Light interference and its use in geodesy] Interferentsiia sveta i ee primenenie v geodezii. Pod obshchei red. V.A.Barinova. Moskva, Izd-vo geodezicheskoi lit-ry, 1956. 193 p. (MLRA 9:7)
(Interference (Light)) (Distances--Measurement)

PHASE I BOOK EXPLOITATION SOV/3758

Kondrashkov, Aleksey Vasil'yevich

Elektrooptycheskiye dal'nomery (Electrooptic Telemeters) Moscow, Izd-vo geodez. lit-ry, 1959. 247 p. Errata slip inserted. 5,000 copies printed.

Ed.: Yu.V. Popov; Tech. Ed.: V.V.Romanova; Ed. of Publishing House: L.M. Komar'kova.

PURPOSE: This book is intended for geodesists and persons interested in distance measuring technology, and also for students of secondary and higher schools of geodesy and optics.

COVERAGE: The book presents problems of physical optics, electrical engineering, electronics, and radio engineering understanding of which is necessary in order to grasp the principles of operation and special design features of electrooptic telemeters. The book describes various types of telemeters and examines measurement errors, as well as methods of using electrooptic telemeters in geodetic operations. There are 82 references: 51 Soviet, 21 English, 4 German,

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3 Swedish, 2 Czech, and 1 Dutch. The author thanks Professor B.N. Rabinovich, Doctor of Technical Sciences; B.A. Larin, Senior Scientific Worker and Candidate of Technical Sciences; and Yu.V. Popov, Senior Scientific worker and Candidate of Physical and Mathematical Sciences.

TABLE OF CONTENTS:

Card 2/7

KONDRASHKOV, A.V.

3(4), 3(2) SOV/154-59-3-16/19

AUTHOR: None Given

TITLE: Scientific-technical Conference of the MIIGA i K in 1959 (Nauchno-tekhnicheskaya konferentsiya MIIGA i K 1959 g.)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"-yemka, 1959, Nr 3, pp 144 - 146 (USSR)

ABSTRACT: The periodic scientific-technical conference of the Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii (Moscow Institute of Geodetic, Aerial Survey and Cartographic Engineers) was held on April 22-24, 1959, with the participation of 500 persons. 31 lectures were delivered. The introductory speech was held by Professor A. A. Izotov. Candidate of Philosophical Sciences A. I. Ivanov lectured on "The Outstanding Work of Materialistic Philosophy"; Candidate of Technical Sciences A. V. Kondrashkov on "Radioelectronics and Geodesy"; Candidate of Technical Sciences G. V. Bagratuni on "Accuracy of the Solution of the Inverse Position Computation With Coordinates of Different Geodetic Systems"; Candidate of Technical Sciences P. F. Shokin reported on "Gravimetry in Today's Stage of Development"; Candidate of Technical Sciences

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KONDRASHKOV, A.V.

3(2),3(4)

AUTHOR: None Given SOV/6-59-6-21/22

TITLE: Chronicle (Khronika)

PERIODICAL: Geodeziya i kartografiia, 1959, Nr 6, pp 74-75 (USSR)

ABSTRACT: At the Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii (Moscow Institute of Geodetic, Aerial Survey and Cartographic Engineers), the Ordinary Scientific Conference took place on April 22-24. A. I. Ivanov, Docent, Candidate of Philosophic Sciences, spoke on "The Outstanding Work of Materialistic Philosophy". A. N. Baranov, Chief of the Glavnoye upravleniye geodezii i kartografii (Main Administration of Geodesy and Cartography) spoke "On the Seven-year Plan for the Development of Topographic-geodetic and Cartographic Work". The following reports were delivered in the geodetic section: A. M. Faynzil'ber, Professor,"Some Integrals of the Surface Theorems and Their Application to the Mechanics of Artificial Satellites of the Earth".- A. V. Kondrashkov, Docent, "Radio-electronics and Geodesy".- G. V. Bagratuni, Docent, "Accuracy in the Solution of Inverse Position Computations by the Coordinates of Different Geodetic Systems".- P. F. Shokin, Docent,

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3,4000

S/154/60/000/003/001/001
B012/B051

AUTHOR: Kondrashkov, A. V., Candidate of Technical Sciences, Docent

TITLE: On the Photoelectric Range Finder With a Mechanical Modulator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka, 1960, No. 3, pp. 31 - 36

TEXT: The present paper is a critical review of the publications of H. Ellenberger (Refs. 1,2), as well as of his lectures given in 1957 during the International Courses for Geodetic Surveying in Munich. Ellenberger spoke about the mode of operation, block diagram, and construction of photoelectric range finders with a mechanical modulator of the light current and a visual observation of the reflected light. It is pointed out that a range finder with a mechanical modulator was also suggested by V. A. Velichko and K. A. Timerbulatova (Author's Certificate No. 108030 of December 1, 1956). Ellenberger tries to compute the possible accuracy of measurement with such a range finder. He supposes that the light signals produced by the modulators of the range finder

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On the Photoelectric Range Finder With a Mechanical Modulator

S/154/60/000/003/001/001
B012/B051

form square pulses. In this connection it is pointed out that G. Mönch (Ref. 3) has shown that a light current emerging from such a modulator changes with time, thus producing triangular and not square pulses (Fig. 2). It is shown that for the range finder described the distance between neighboring maxima and minima of triangular pulses is 30 to 36 m. Furthermore, it is pointed out that Ellenberger uses the terms of wavelength and oscillation frequency where these terms are related only to harmonic oscillations. The representation of the theory of the range finder used in the papers (Refs. 1,2) offered Ellenberger no opportunity to determine the probable accuracy of the instrument. It is pointed out here that the theory of the range finder can be presented also in a different way. One can use the commonly accepted terms of the frequency and wavelength of harmonic oscillations if one represents the law of change in the light current by a Fourier series. Thus, not only the necessary accuracy and correctness of the representation is achieved, but it is also possible to determine the probable accuracy of distance measurement by means of a range finder. Formula (6) is deduced which allows the probable accuracy of distance measurement to be estimated by means of a range finder with a mechanical modulator. It is shown that a

4

KONDRASHKOV, A.V., dotsent, kand.tekhn.nauk

F.N. Krasovskii's role in the organization of high-precision linear measurements in the U.S.S.R. Trudy MIIGAIK no.37:71-73 '59. (MIRA 15:5)
(Krasovskii, Feodosii Nikolaevich, 1878-1948)
(Distances--Measurement)

KONDRASHKOV, A.V., dotsent; RATYNSKIY, M.V., assistent

Results of testing the SVV-1 telemeter on the geodetic polygon of the Moscow Institute for Engineers in Geodesy, Aerial Photography, and Cartography. Trudy MIIGAIK no.46:89-91 '61. (MIRA 15:7)

1. Kafedra vysshey geodezii Moskovskogo instituta inzhenerov geodezii, aerofotos"yemki i kartografii.
(Geodimeter)

KONDRASHKOV, A.V.

Necessity of transliterating foreign names. NTI no.2:18 '64.
(MIRA 17:6)

1. Prorektor po nauchnoy rabote Moskovskogo instituta inzhenerov geodezii, aerofotos"yemki i kartografii.

KONDRASHKOV, A.V., dotsent, kand. tekhn. nauk; RATYYSKIY, M.V., assistent

Use of the flicker method in measuring distances with an SVV-1 range finder. Izv. vys. ucheb. zav.; geod. i aerof. no.5:49-60 '63. (MIRA 17:8)

1. Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii.

DEDKOV, Yu.M., mladshiy nauchnyy sotrudnik; KONDRASHKOV, A.V., dotsent

Nitrobenzene for Kerr capacitors in electrooptical range finders. Izv. vys. ucheb. zav.; geod. i aerof. no.4:3-6 '64.
(MIRA 18:2)

1. Institut geokhimii i analiticheskiy khimii imeni V.I. Vernadskogo AN SSSR (for Dedkov). 2. Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii (for Kondrashkov). Rekomendovana kafedroy vysshey geodezii Moskovskogo instituta inzhenerov geodezii aerofotos"yemki i kartografii.

KONDRASHKOV, A.V.; GAVRILOVA, S.A.; BOLDOV, V.G.

Comparison of the content of the sections on geodesy, aerophotography, and cartography in the Universal Decimal Classification System, the classification system of the Moscow Public Library, and the system of subject headings in "Geodeziia", a journal of abstracts. NTI no.3: 33-35 '64. (MIRA 17:9)

KONDRASHKOV, A.V., dotsent, kand. tekhn. nauk; RATYNSKIY, M.V., assistent

Reduction to station centers of lines measured with electro-optical geodimeters. Izv. vys. ucheb. zav.; geod. i aerof. no.5:33-36 '64.
(MIRA 18:5)

1. Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii,

KONDRASHKOV, A.V., kand. tekhn. nauk, red.

[Achievements of science; surveying, 1963] Itogi nauki; geodeziia 1963. Moskva, Akad. nauk SSSR, 1965. 101 p. (MIRA 18:11)

ACC NR: AP6036398 (A) SOURCE CODE: UR/0154/66/000/004/0037/0045

AUTHOR: Kondrashkov, A. V. (Docent; Candidate of technical sciences)

ORG: Moscow Institute of Engineers of Geodesy, Aerial Photography and Cartography (Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii)

TITLE: Interference comparator for calibration of invar wires developed at MIIGAiK

SOURCE: IVUZ. Geodeziya i aerofotos"yemka, no. 4, 1966, 37-45

TOPIC TAGS: geodetic instrument, instrument calibration equipment, TRIANGULATION, INTERFEROMETER.

ABSTRACT: The author describes the construction and functions of the interferometer for comparison of invar wires which was developed at the Institute. He justifies such a development by the continued need for conventional methods and instruments to check on the more sophisticated methods of cosmic triangulation. This interferometer was developed to calibrate wires used for crosshairs in range finders. A brief history is given of the development of such instrumentation since 1936. The instrument, which is bulky enough to be stationary, consists of five principal elements: 1) the light conveying tube with its support and accessories, 2) two mirrors with their mountings and the microscope micrometers, 3) the quartz standard with its mountings, 4) the telescope fitted with a diaphragm, and 5) two block clamps. The quartz standard can be placed vertically or horizontally and may be moved in these directions.

UDC: 528.512 + 531.713

Card 1/2

Possible errors are determined by the method of least squares. Orig. art. has: 3 tables, 5 figures.

SUB CODE: 08,14/ SUBM DATE: 26Jan66/ ORIG REF: 010

Card 2/2

MOZOLIN, Viktor Pavlovich; KONDRASHKOV, N.N., red.; GEORGIYEVA, G.I., tekhn.red.

[Rights of inventors and efficiency promoters] Prava izobretatelei i ratsionalizatorov v SSSR. Moskva, Izd-vo Mosk.univ., 1959. 90 p. (MIRA 13:6)
(Inventions)

32841
S/020/62/142/002/022/029
B101/B144

11.7000

AUTHORS: Bakhman, N. N., and Kondrashkov, Yu. A.

TITLE: Model of a burning front of condensed mixtures

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 2, 1962, 377 - 379

TEXT: The model of a burning front which allows for the inhomogeneity of the mixture and permits to derive an equation for u(d) (u = burning rate, d = particle size), not contradicting experimental data, is investigated. For $d \leq d_{min}$, the burning front is plane. With increasing d, protrusions form at the burning front (Fig. 1). The burning rate is assumed to be kinetically determined by so narrow a zone at the flame protrusion A that $u \sim p^n \exp(-E/2RT_A)$, where T_A is the temperature in the center of A. For the heat balance at point A, one finds $\rho uQ + q_{diff} = \rho uc(T_A - T_o) + q_y$, where Q(in cal/g) is the thermal effect of the reaction in A, q_{diff} is the heat flow to A from the higher diffusion flame, $\rho uc(T_A - T_o) = \lambda(dT/dx)_A$

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Model of a burning ...

is the heat required for heating the mixture in A, and q_y is the laterally emitted heat, dependent on the slant ϕ of the burning front. ϕ is expressed by u and d; for small d, molecular heat conduction ($\lambda = \lambda_o$, λ_o being the heat conduction at d_{min}) is assumed, and for large d, convective heat conduction ($\lambda \sim udc\rho$) is assumed. When putting $q_{diff} \ll \rho uQ$; $T_o \ll T$, the functions $\log u = a - bud\left[1 - (u_o d_{min}/ud)^2\right]$ (11) and $\log u = a - \left[b'/(u_o d_{min})^2\right]$ $\left[1 - k'(u_o d_{min})^2\right]$ (12) are obtained for small and large d respectively. a and b are constants, and u_o is the burning rate at d_{min}. The values obtained from these equations agree well with experimental data (Fig. 2). The coefficient b decreases with increasing pressure: $b(sec/cm^2)$ is 39.7 at 5 atm, and 10.7 at 100 atm. Eq. (11) also reproduces well the experimentally observed decrease of u(p) with increasing d. There are 2 figures, 1 table, and 6 Soviet references.

Card 2/4 3

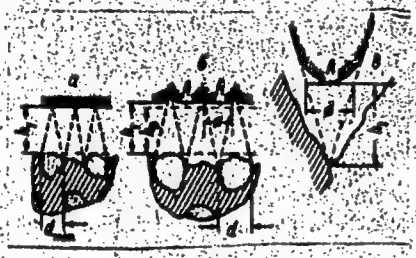
Model of a burning...

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences USSR)

PRESENTED: August 1, 1961 by V. N. Kondrat'yev, Academician

SUBMITTED: July 28, 1961

Fig. 1. Behavior of the burning front at different particle sizes. (a) $d = d_{min}$; (б) $d > d_{min}$ $(d/d_{min} \sim 1)$; (в) $d \gg d_{min}$.



Card 3/4

BAKHMAN, N.N.; KONDRASHKOV, Yu.A.

Combustion of condensed three-component mixtures. Zhur.fiz.khim. 37 no.1:216-219 Ja '63. (MIRA 17:3)

1. Institut khimicheskoy fiziki AN SSSR.

L 7678-66 EPA/EWT(m)/EWP(f)/FCC/EWP(j)/FCS(f)/EWP(m)/EWA(c)/ETC(m) RPL
WW/JWD/RM SOURCE CODE: UR/0405/65/000/001/0025/0030
ACC NR: AP5026023

AUTHOR: Belyayev, A. F. (Moscow); Kondrashkov, Yu. A. (Moscow); Lukashenya, G. V. (Moscow); Parfenov, A. K. (Moscow); Tsygankov, S. A. (Moscow)

ORG: none

TITLE: Flame combustion of model mixtures of oxidizer with fuel

SOURCE: Nauchno-tekhnicheskiye problemy goreniya i vzryva, no. 1, 1965, 25-30

TOPIC TAGS: propellant, solid propellant, combustion, composite propellant, burning velocity

ABSTRACT: The relationship between the burning velocity (u) and pressure (p) of composite propellants has been studied at subatomic pressure. Ammonium perchlorate-trotyl, potassium perchlorate-trotyl, ammonium perchlorace-asphalt, ammonium perchlorate-paraformaldehyde, and ammonium perchlorate-polystyrene were ground to 20 to 40 μ and intensively mixed and compacted to 98% of the maximum density. Although the propellants had different fuels, oxidizers, and polymer binders, the u-vs-p relationships were linear. Therefore, it appears that systems which contain sufficiently fine components and a fuel which can be

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L 7678-66
ACC NR: AP5026023

2

gasified by decomposition, pyrolysis, or evaporation, give linear u-vs-p relationships at subatmospheric pressure. The experimental results together with an evaluation of burning velocities at higher pressures, obtained previously, indicate that the following four regions exist: 1) a low-pressure region characterized by a plane flame front up to about 2 atm (D = 1); 2) the region of transition from a plane to a multiflame front with a nonlinear u-vs-p relationship (D < 1) at 2.5—3 to 100—250 atm; 3) a high-pressure region characterized by a multiflame front but with a linear u-vs-p relationship from 100—200 to 1000—1500 atm; and 4 a region above 1500 atm (D< 0.3—0.4). Multiflame fronts consist of flames which propagate along the fuel-oxidizer boundaries into the propellant. Orig. art. has: 6 figures. [PV]

SUB CODE: FP/ SUBM DATE: 02Nov64/ ORIG REF: 009/ OTH REF: 002/ ATD PRESS:
4141

Card 2/2

L 30339-66 EWP(j)/EWT(m)/T RM/WW/JW/JWD

ACC NR: AP6019531 SOURCE CODE: UR/0020/66/168/004/0844/0845

AUTHOR: Bakhman, N. N.; Kondrashkov, Yu. A.

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: An expression for the burning velocity in the presence of simultaneously occurring homogeneous and heterogeneous reactions

SOURCE: AN SSSR. Doklady, v. 168, no. 4, 1966, 844-845

TOPIC TAGS: burning velocity, combustion theory, explosive mixture

ABSTRACT: Based on the Ya. B. Zel'dovich formula for the burning velocity of a homogeneous system (ZhETF 12, no. 11-12, 498, 1942), an expression was derived for the pressure dependence of the burning velocity ratio $Z = u'/u$; here, u is the burning velocity of a homogeneous system and u' is the burning velocity in the presence of particles of an additive (charcoal, Cu_2O, etc.) or particles formed during the combustion process in a homogeneous system. In the latter case, in addition to the homogeneous reactions, heterogeneous reactions also take place on the particle surface. Analysis of published experimental data on the burning velocities of various explosive and combustible mixtures (PETN + charcoal, $KClO_4$ + bitumen + W, NH_4ClO_4 + plexiglass + carbon or Cu_2O, and NH_4ClO_4 + paraformaldehyde) showed that the proposed expression is in a good agreement with the experimental results. Orig. art. has: 1 table and 6 formulas. [PS]

SUB CODE: 21/ SUBM DATE: 30Jul65/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS: 5016

Card 1/1 UDC: 541.126.662.611/612

ACCESSION NR: AP4033597 S/0119/64/000/004/0008/0008

AUTHOR: Zograf, I. A. (Engineer); Knorring, V. G. (Engineer); Kondrashkova, G. A. (Engineer); Maly*gina, N. V. (Engineer)

TITLE: Method for measuring infralow-frequency currents and voltages

SOURCE: Priborostroyeniye, no. 4, 1964, 8

TOPIC TAGS: infralow frequency, infralow frequency current, infralow frequency voltage, infralow frequency measurement, fraction cps measurement

ABSTRACT: The existing methods of infralow-frequency measurement are based on high-inertia instruments with a resulting slow reaction. A new principle of measurement is suggested in which a differential frequency converter develops two frequencies f_1 and f_2 in two oscillators (block diagram supplied). Both frequencies are fed into a balanced modulator with a low-pass filter; the latter yields the difference frequency $f_1 - f_2$. This frequency is zero at no measurand;

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Card 2/2

KONDRASHKOVA, G.A.

Electrodynamic frequency-digital transforming devices. Nov. nauch.-issl. rab. po metr. VNIIM no.6:13-16 '64.

(MIRA 18:3)

KONDRASHKOVA, G.A.

Evaluating the linearity of wire measuring instruments with quadratic converters. Izv. vys. ucheb. zav.; prib. 7 no.1:134-142 '64. (MIRA 17:9)

1. Leningradskiy politekhnicheskiy institut imeni M.I. Kalinina. Rekomendovana kafedroy elektroizmeritel'noy tekhniki.

ACCESSION NR: AP4041652 S/0146/64/007/003/0073/0077

AUTHOR: Kondrashkova, G. A.

TITLE: Methodic errors of string-type differential force-into-frequency transducers

SOURCE: IVUZ. Priborostroyeniye, v. 7, no. 3, 1964, 73-77

TOPIC TAGS: transducer, signal transducer, differential transducer, force frequency transducer

ABSTRACT: A differential string transducer, in which one of the prestrained strings is additionally strained while the other is slackened by the measurand, may have a theoretical nonlinearity error as low as ±0.01%. However, the formulas that yield such low error values neglect the string rigidity to bending, string length variation under the influence of measurand force, and the vibration-amplitude variation with varying tension. An attempt is made to mathematically

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ACCESSION NR: AP4041652

assess the above factors, and corresponding correction formulas are developed. According to these formulas, the following conditions should be met to ensure a specified accuracy of the transducer: (1) The measurand should be selected for a specified linearity; (2) the minimum possible σ_r/E and transverse rigidity of the string should be observed; (3) either a constant or small amplitude of vibration should be ensured. Orig. art. has: 20 formulas.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Leningrad Polytechnic Institute)

SUBMITTED: 19Jul63 ENCL: 00

SUB CODE: EE, IE NO REF SOV: 002 OTHER: 003

Card 2/2

RAVICH-SHCHERBO, Mikhail Iosifovich; ANNENKOV, Genrikh Antonovich; KONDRASHKOVA, S.F., red.

[Physical and colloid chemistry] Fizicheskaia i kolloidnaia khimiia. Moskva, Vysshaia shkola, 1964. 297 p. (MIRA 19:1)

Kondrashkova T.V.

TORBAN, M.A.; KONDRASHKOVA, T.V.

Possibility of gractionizing antidiphtheric serums with zinc salts and phosphomolybdic acid [with summary in English]. Biokhimiia 22 no.3:460-466 My-Je '57. (MIRA 10:11)

1. Stavropol'skiy institut vaktsin i syvorotok.
(DIPHTHERIA, immunology,
immune serum, fractionation with zinc salts & phosphomolybdic acid (Rus))
(ZINC,
salts, fractionation of anti-diphtheria serum (Rus))
(PHOSPHATES,
phosphomolybdic acid, fractionation of anti-diphtheria serum (Rus))

1. KONDRASHOV, A.: ZHIZHNEVSKIY, V.

2. USSR (600)

4. Oils and Fats

7. Useful book ("Handbook of fat production." S.G. Liberman, V.P. Petrovskiy.) Mias. ind. SSSR 23. no. 5. 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

IVAKHNYUK, V.A., inzh.; MUSATOV, I.G., inzh.; GRINMAN, M.M., inzh.
LOBOYKO, V.N., inzh.; PETRENKO, N.P., inzh.; KONDRASHOV, A.A.,
inzh.

Precast and monolithic caissons in the building for the initial crushing of ore. Prom. stroi. 42 no. 6:15-17 '65. (MIRA 18:12)

1. Belgorodskiy otdel instituta Khar'kovskiy Promstroyniiproyekt (for all except Kondrashov). 2. Trest "KMArudstroy" (for Kondrashov).

KONDRASHOV, A.A., podpolkovnik meditsinskoy sluzhby; KESEL', Ya.,V., mayor meditsinskoy sluzhby

Medical training for the personnel of a unit. Voen.-med.zhur. no.9:77 S '61. (MIRA 15:10)
(MEDICINE, MILITARY--STUDY AND TEACHING)

CHIBISOV, I.V.; KONDRASHOV, A.D.; GREBTSOV, Ye.M.

Practice of using external water stemming to reduce the amount of dust in the air during blasting. Bor'ba s sil. 5:151-155 '62. (MIRA 16:5)

1. Shakhtinskiy nauchno-issledovatel'skiy ugol'nyy institut. (Blasting—Equipment and supplies) (Mine dusts—Prevention)

AGUR'YANOV, I.F., inzh.; KONDRASHOV, A.G., inzh.

Changes in the design of vertical core prints. Lit. proizv. no.9: 35-36 S '65. (MIRA 18:10)

18(7)
AUTHORS: Braynin, I. Ye, Kharchenko, V. A., Kondrashov, A. I.

SOV/163-58-4-40/47

TITLE: Influence of Homogenization on the Position of the Critical Points in Chrome-Nickel-Molybdenum Steel (Vliyaniye gomogenizatsii na polozheniye kriticheskikh tochek v khromonikel'molibdenovoy stali)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 4, pp 229-231 (USSR)

ABSTRACT: The chrome-nickel-molybdenum steel 42KhN3M was investigated here. It shows a special inclination to the segregation of dendrites and has the following chemical composition : 0.42% C, 0.50% Mn, 0.30% Si, 0.83% Cr, 2.90% Ni, 0.30% Mo, 0.022% P, 0.018% S. The critical points were determined on the differential dilatometer with optical recording. On account of the investigation, it was ascertained that a previous homogenization of the chrome-nickel-molybdenum steel has an influence on the position of the critical points as follows: 1) The points A_{c_1} and A_{c_3} rise a little. 2) In cooling at a speed below the critical speed, the point of the beginning

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decomposition of beynite falls, and the point of the beginning conversion of martensite rises. 3) In cooling at a speed equal to or higher than the critical speed, the initial point of martensite conversion M_H falls at the expense of the concentration increase in carbon and the alloying elements in the dendrite axes. There are 1 figure and 3 references, 2 of which are Soviet.

ASSOCIATION: Donetskiy industrial'nyy institut (Donets Industrial Institute)

SUBMITTED: October 26, 1957

~~KOZLOV~~ ~~BRAYNIN, I. Ye.~~ / B. KONDRASHOV, A. I

133-58-4-22/40

AUTHORS: Braynin, I. Ye., Professor, Kharchenko, V. A. and Kondrashov, A. I., Engineers

TITLE: The Influence of Internal Stresses on the Formation of Flakes (Vliyaniye vnutrennikh napryazheniy na obrazovaniye flokenov)

PERIODICAL: Stal', 1958, Nr 4, pp 342-348 (USSR)

ABSTRACT: The investigation was carried out in order to determine the influence of additional stresses on the formation of flakes under real production conditions without an artificial saturation of metal with hydrogen. Specimens from forgings of 40KhN steel of the following composition %: C 0.39; Mn 0.62; Si 0.22; Cr 0.65; Ni 1.2 were taken for the investigation. Steel 4KhN possesses a considerable hardenability on cooling in water and at the same time its supercooled austenite is comparatively little stable in the upper subcritical zone and no cooling in hot ash or scale even in small forgings, with transverse dimensions 70-80 mm, is completely transformed above 600°C. Moreover, this steel is flake sensitive. Semis were forged from 3 ton ingots which after stripping were slowly cooled during 6 hours in a pit, then heated in a furnace to

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133-58-4-22/40

The Influence of Internal Stresses on the Formation of Flakes

forging temperature and forged in a press to a cross section of 150 x 150 in the temperature range 1180-960°C. Specimens were cut out from the lower part of the ingot after crop bottom. Altogether eight specimens were prepared which were variously treated (a description is given) in order to obtain various kinds of stresses (mechanical, thermal, structural). After three days all specimens were tested for the presence of flakes by the following methods: a) ultrasonic test in order to detect discontinuities and to determine their depth and direction; b) cutting out templets and making sulphur prints; c) control of the templets for flakes with magnetic defectoscope and by deep etching with ammonia persulphate and nitric acid; d) study of fracture and micro-structure in places where flakes were found and hardness across the cross-section of specimens. The results of the control on the presence of flakes are assembled in Fig.2. Conclusions: The results obtained confirmed the conclusions of the investigators (Refs.2 and 8) who considered the formation of flakes results from the joint action of hydrogen and tensile stresses (mechanical, thermal, structural). Artificially induced tensile stresses

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SOV/24-58-5-9/31

AUTHORS: Braynin, I. Ye., Kondrashov, A. I. and Kharchenko, V.A. (Stalino)

TITLE: The Effect of Homogenisation on the Stability of Supercooled Austenite in Chromo-Nickel-Molybdenum Steel (Vliyaniye gomogenizatsii na ustoychivost' pereokhlazhdennogo austenita v khromonikel'molibdenovoy stali)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 5, pp 54-58 (USSR)

ABSTRACT: The effect of homogenising treatment (diffusion annealing) on the kinetics of the isothermal transformation of austenite was investigated by the magnetometric method on two types of steel of the following composition:

Steel	Mark	C	Mn	Si	Cr	Ni	Mo	P	S
A	35KhN3M	0.34	0.50	0.32	0.97	2.98	0.33	0.030	0.027
B	35KhNM	0.33	0.47	0.25	0.95	1.54	0.36	0.026	0.025

The critical points of the two steels determined by dilatometric measurements are given below:

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The Effect of Homogenisation on the Stability of Super-cooled Austenite in Chromo-Nickel-Molybdenum Steel

Steel	On heating		On cooling	
	Ac_1	Ac_3	Region of Bainite Transformation	Start of the martensitic transformation M
A	690°C	770°C	470-270°C	310°C
B	730°C	800°C	480-320°C	340°C

The samples used for the preparation of the experimental test pieces were cut out from 6-ton forgings of 600 mm diameter, at a distance of a half of the radius from the surface. The homogenising treatment consisted of holding for 6 hours at 1200 or 1255°C in the case of steel "A", and 3 or 6 hours at 1255°C in the case of steel "B". All test pieces were protected from oxidation by a layer of electrodeposited chromium. The isothermal transformation of the austenite was studied at 300°C in steel "A", and at 300 and 650°C in steel "B". The results, tabulated and graphed in the form of percentage of

SOV/24-58-5-9/31

The Effect of Homogenisation on the Stability of Super-cooled Austenite in Chromo-Nickel-Molybdenum Steel

decomposed austenite-versus-time curves, show that the time required for complete decomposition of supercooled austenite and the incubation period in homogenised steel "A" are respectively 2-3 and 100-150 times shorter than in the untreated material. In the case of steel "B" treated isothermally at 650°C, the preliminary homogenising treatment shortened the time required for complete decomposition by a factor of 1.5, and the incubation period by a factor of 5. The results of the magnetometric measurements were confirmed by microscopic examination which revealed that after identical isothermal treatment the proportion of retained austenite was considerably higher in specimens subjected to a preliminary homogenising treatment. The fact that this treatment which should normally result in an increase of the incubating period had in fact an opposite effect is attributed to the formation of ultramicroscopic domains saturated with sulphur and denuded of carbon. Such domains were detected micro-

Card 3/4 scopically in alloy steels heated to 1250°C and

The Effect of Homogenisation on the Stability of Super-cooled Austenite in Chromo-Nickel-Molybdenum Steel

higher temperatures.
There are 6 figures, 2 tables and 10 references, 7 of which are Soviet, 3 English.

ASSOCIATION: Donetskiy industrial'nyy institut (Donets Industrial Institute) and NKMZ

SUBMITTED: July 3, 1957

Card 4/4

129-58-7-10/17

AUTHORS: Braynin, I. Ye, Doctor of Technical Sciences Professor, Kondrashov, A. I. and Kharchenko, V. A., Engineers

TITLE: Improvement of the Technology of Heat Treatment of Cold Rolling Rolls Made of the Steel 9KhF. (Usovershenstvovaniye tekhnologii termicheskoy obrabotki valkov kholodnoy prokatki iz stali 9KhF)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7, pp 43-46 (USSR)

ABSTRACT: From 1949 onwards the authors' parent factory started producing the rims of rolls for cold rolling from 9KhF steel produced in an open hearth furnace using the ordinary method of "precipitation deoxidation". This steel is less inclined to form cracks and floculi than the earlier used eutectoidal steel 65KhMF. In this paper the results are given of investigations of this steel. The rims were produced by forging from ingots weighing 27 tons. The temperature at the beginning of forging was 1150 to 1180°C, the temperature at the end of forging was 800 to 900°C. The forgings had the following final dimensions: outside diameter 1300 mm, inside diameter 700 mm, length 2050 mm. One batch was forged in a single operation, a

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Improvement of the Technology of Heat Treatment of Cold Rolling Rolls Made of the Steel 9KhF

second batch was forged in two operations with an intermediate annealing which is described in great detail. The following conclusions are arrived at:

1) An appreciable grain growth and over-heating of the steel 9KhF takes place above 950°C when the secondary carbides dissolve in the austenite.

2) An increase of the austenization temperature from 830 to 960°C improves the stability of the super-cooled austenite, increases the temperature of its minimum stability in the pearlitic range and reduces its martensitic point.

3) Forging of backing roll rims for cold rolling rolls brings about a reduction in the size of the primary grain and an improvement in the macro-structure of the metal.

4) The two-stage regime of isothermal annealing developed by the authors and described in the paper obviates the necessity of normalisation annealing for eliminating the floculi of the carbide grid and ensures a satisfactory hardness and good machineability.

Improvement of the Technology of Heat Treatment of Cold Rolling Rolls Made of the Steel 9KhF

5) The described regimes of hardening (through water in oil) and tempering ensures obtaining the necessary hardness at the surface of the rolls with a minimum of the residual internal stresses.
There are 5 figures.

ASSOCIATIONS: Donetskiy industrial'nyy institut (Donets Industrial Institute) and Novo-Kramatorskiy Zavod (Donbass) (Novo-Kramatorskiy Works, Donbass)

BRAYNIN, I.Ye., prof.; KHARCHENKO, V.A., inzh.; KONDRASHOV, A.I.

Experimental investigation of stress distribution in the cross section of a blank deformed by bending in association with flake formation. Izv. vys. ucheb. zav.; chern. met. no.12:73-77 D '58. (MIRA 12:3)

1.Donetskiy industrial'nyy institut i Novo-Kramatorskiy zavod tyazhelogo mashinostroyeniya.
(Deformations (Mechanics))
(Steel--Metallography)

S/137/61/000/011/092/123
A060/A101

AUTHORS: Braynin, I. Ye., Kharchenko, V. A., Kondrashov, A. I.

TITLE: The effect of homogenization on the mechanical characteristics and flake sensitivity of chrome-nickel-molybdenum steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 9, abstract 11I52 ("Tr. Donetsk. industr. in-ta", 1958, 32, 5-23)

TEXT: An investigation was carried out as to the effect of homogenization upon the mechanical characteristics (σ_b, σ_s, δ, ψ, a_k), H_B, and the microhardness of specimens cut out of various zones of forgings of steel 42XH3M (42KhNZM) (6 ton ingot) and 34XH3M (34KhNZM)(15.9 ton ingot), and also upon the flaking sensitivity of these steels. It was established that the homogenization of specimens of steel 34KhNZM cut out of the outside zone at 1,150°C for 10 hours raises the δ, ψ, and the a_k. Homogenization of large forgings at 1,180-1,200°C for 6 hours has no noticeable effect upon the lowering of flaking sensitivity and the raising of δ, ψ, and a_k of transversal specimens. There are 33 references.

T. Fedorova

[Abstracter's note: Complete translation]

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36803

S/137/62/000/004/087/201
A052/A101

18.7500

AUTHORS: Braynin, I. Ye., Kondrashov, A. I., Kharchenko, V. A.

TITLE: The basic characteristics of 9 ХФ (9KhF) steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 14, abstract 4I91 ("Tr. Donetsk. industr. in-ta", no. 32, 1958, 169 - 175)

TEXT: On samples cut out from forged 9KhF steel assays selected from 1.25-ton ingots, the following characteristics were determined: temperature Ac_1, microstructure and the kind of fracture of hardened samples, the size of austenite grain, hardenability and the kinetics of isothermic austenite decomposition, hardness and a_k as a function of the tempering temperature after hardening, tendency to temper brittleness. By means of finishing forging at temperatures from 900 to 700°C, cooling at different V_{cool} and additional normalizing, the ways of preventing the appearance of the carbide skeleton in microstructure were looked for. It has been established that the overheating of 9KhF steel begins from hardening temperature of > 950°C in connection with the solution of secondary carbides. An increase of austenizing temperature from 830 to 860°C raises the

Card 1/2

S/137/62/000/005/121/150
A160/A101

AUTHORS: Kharchenko, V. A., Gurzhiyenko, K. F., Kondrashov, A. I., Akulinin, M. A.

TITLE: The effect of thermal treatment conditions of forge-heated forgings on the formation and coloring of flakes

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 126, abstract 5I769 ("Tr. Donetsk. politekhn. in-ta", 1961, 56, 41 - 53)

TEXT: The investigation of the effect of the process of cooling forged pieces and of the subsequent tempering on the formation of flakes and their coloring was carried out with 34 XH3M (34KhNZM) steel composed of 0.35% C, 0.57% Mn, 0.26% Si, 0.90% Cr, 3.12% Ni, 0.31% Mo, 0.018% S, 0.020% P, and containing 6.0 cm^3 of H per 100 g during the teeming. The ingot, having a temperature of 700°C and delivered to the forge and press shop, was charged, within two hours, into the furnace with a temperature of 650°C for 6 hours. Then, it was charged into the soaking pit with a temperature of 950°C for 35 hours, and ultimately it was removed with 1,200°C for billeting. After this process, it was

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The effect of thermal treatment...

again charged into the furnace with 1,050°C for 17 hours and then taken out for forging. The forging was conducted at 1,200 - 950°C. After the forging, the samples were subjected to various stages of treatment: 1) they were cooled in the air, 2) cooled down to 100°C, and 3) quenched in oil. Immediately after the cooling, one part of the samples was tempered at 650°C for 5 hours; one part was tempered after aging at room temperature for two weeks; and one part remained untempered. The kinetics of the formation of flakes during the process of the hold time at room temperature for 2 to 15 days was investigated by the ultrasonic method. Investigated were also the macrostructure and the flakes with the help of a magnetic flaw detector after an aging process of 1 month. It was revealed that the quantity and the zone of the location of flakes increase in case the cooling rate is increased. The dimensions of the flakes, however, decrease if the cooling rate is raised. An immediate high tempering prevents the formation of flakes. The aging of samples in the air up to the tempering for two weeks, contributes to increase the amount and sizes of flakes. A bright silverish coloring of the flakes in their cross-sectional view is obtained only in the samples subjected to high tempering, as a result of an increase in the plasticity and toughness of the metal. There are 8 references.
[Abstracter's note: Complete translation]

A. Babayeva

Card 2/2

S/123/62/000/009/001/017
A052/A101

AUTHORS: Kharchenko, V. A., Gurzhiyenko, K. F., Kondrashov, A. I.

TITLE: The temper brittleness of 34 XH3 M (34KhN3M) Cr-Ni-Mo steel at isothermal annealing

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 9, 1962, 19, abstract 9A112 ("Tr. Donetsk. politekhn. in-ta," no. 56, 1961, 115-123)

TEXT: The effect of cooling conditions after isothermal annealing at 650°C (without a recrystallization and with a double recrystallization) on brittleness and mechanical properties of 34KhN3M steel was studied. It has been established that at a slow cooling from 650°C (with the furnace and even in the air) a tendency to temper brittleness is observed.

[Abstracter's note: Complete translation]

Card 1/1

L 20798-65 EWT(d)/EWT(m)/EWP(v)/EWA(d)/EWP(v)/...

...5/0009

... zh. Mashinostr. mat., ... masc.

...zh!yenko, K. ...

... high strength steel for hydraulic presses

... Legirovaniye staley. ...

... high strength metal, steel, hydraulic press/ steel KhMFN, ...MFN, steel 5KhNM

... work has been carried out in the central laboratory of ... in collaboration with TsNIITMash ...

... properties, ...

L 32267-65 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(b)/
EWP(l) Pf-4 MJW/JD/HW
ACCESSION NR: AR4048242 S/0137/64/000/009/I052/I052

SOURCE: Ref. zh. Metallurgiya, Abs. 9I324

AUTHOR: Pilyushenko, V. L.; Kondrashov, A. I.; Tutov, I. Ye.; Savukov, V. P.; Gurozhiyenko, K. F.; Kamalov, V. Z.

TITLE: High strength steel for hydropresses

CITED SOURCE: Sb. Legirovaniye staley. Kiyev, Gostekhizdat USSR, 1963, 20-32

TOPIC TAGS: high strength metal, steel, hydropress, heat treatment, metal mechanical property/ steel KhMFN, steel 25Kh2MFN, steel 5KhNM

TRANSLATION: An investigation was made of steel KhMFN, alloyed with additions of aluminum (0.6%), boron (0.0015-0.0085%), tungsten (0.7-1.25%), sulfur (0.015-0.040%), silicon (0.3-2.1%), manganese (0.4-1.4%). Forged billets were heat treated under two conditions: 1) normalization from temperature Ac3+50°, cooling at the rate of 100°/hr to 300°, and 2) quenching in oil from Ac3+50°. Tempering was performed for 5 hrs at 500, 550, 600, and 650°. The steel was

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L 32267-65

ACCESSION NR: AR4048242

evaluated by mechanical tests at 20, 350, and 450°. Steel 25Kh2MFN has the highest strength and ductility. A model of a hydropress container ring (diameter 1220/1850 mm, height 880 mm) prepared from this steel has, in an annealed state, $sigma_s$ 54.2-57.4 kg/mm^2, $sigma_b$ 70.5-75.5 kg/mm^2, delta 19.4-21.6%, psi 56.5-59.8%, a_k 9.7-14.4 kgm/cm^2, H_B 217-228. The critical points of the steel are Ac_1=780°, Ac_3=910°, Ar_3=470°, Ar_1=340°. Optimum temperature of austenization is 900°. Mechanical properties do not change in the cross sections of either annealed or normalized states from 900° ($sigma_s$ 115 kg/mm2, $sigma_b$ 133-147 kg/mm^2). Additional tempering at 450° for 5 hrs increases ductility. Optimal tempering temperature (after normalization and quenching with tempering at 450°), ensuring the test combination of ductility and strength, is at 540-560°. Steel 25Kh2MFN has high hardenability. The properties of steel 25Kh2MFN are compared with those of steel 5KhNM. The resistance of steel 25Kh2MFN to tempering is determined: a) by carbide dispersion, and b) by alloying with ferrite of chromium, molybdenum and vanadium, regardless of tempering temperature. Agint the steel at 400-450° (500 and 1000 hrs) does not lower mechanical properties. Tests were performed on steel 25Kh2MFN for wear resistance, erosion resistance

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L 32267-65

ACCESSION NR: AR4048242

and stress-rupture strength under cyclic stress (450°, sigma 50-100 kg/mm^2). 8 tables. B. Samarin.

SUB CODE: MM ENCL: 00

Extrusion, container ring

Card 3/3

EWT(1)/EEC(t)/EPA(sp)-2/T/EWA(m)-2 Pi-4/Po-4/Pz-6/Pab-10

P.G. Yakovlev, T.P.

longitudinal high frequency ... steady filamentary discharge.

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no.2, 1965, 25

TOPIC TAGS: plasma stability, gas discharge, high frequency current, magnetic field

... discharge in hydrogen or argon was investigated. The ...

ACC NR: AP5013226

...es of pressure and magnet... ...

The authors consider it necessary to mention that the work with the ... was performed in collaboration with ...

SUBM DATE: 08Jan64 ENCL: 00 SUB CODE: ME,EM

NO REF SOV: 001 OTHER: 000

Card 2/2

L 42923-66 EWT(m)/EWP(w)/T/ETI/EWA(c) IJP(c) JD

ACC NR: AP6029055 SOURCE CODE: UR/0413/66/000/014/0082/0082

INVENTOR: Tursunov, A. V.; Gutorova, V. L.; Kondrashov, A. I.; Pilyushenko, V. L.

ORG: none

TITLE: Structural steel for use at low temperature. Class 40, No. 183946. [announced by the Scientific Research Institute of Ferrous Metallurgy (Nauchno-issledovatel'skiy institut chernoy metallurgii)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 82

TOPIC TAGS: cold brittleness, structural steel, cold resistant steel, silicon containing steel, manganese containing steel, tungsten containing steel

ABSTRACT: This Author Certificate introduces a structural steel for use at low temperature which contains silicon and manganese. In order to decrease the susceptibility to cold brittleness, the steel has following composition: 0.32—0.40% C, 0.17—0.3% Si, 1.00—1.30% Mn, 0.2—0.35% W, up to 0.05% Ti, up to 0.05% Al, up to 0.035% S, and up to 0.035% P. [WW]

SUB CODE: 11/ SUBM DATE: 090ct64/ ATD PRESS: 5008

Card 1/1 UDC: 669.15-194.2

KONDRASHOV, A.M., inzhener.

Use qualified personnel for boiler inspection. Bezop.truda v prom. 1 no.7:12-13 Jl '57. (MLRA 10:7)
(Boiler inspection)

MOROZOV, M.P.; ATHUSHKEVICH, L.G.; GUTOROV, V.G.; KONDRASHOV, A.M.; MOROZOV, K.S.; NIKITENKO, I.S.; TATARENKO, V.A.; USHAKOV, P.N.; ZHILYAYEV, A.V., otv.red.; VOLKOVA, V.A., red.izd-va; IL'INSKAYA, G.M., tekhn.red.

[Regulations for the construction and safe operation of steam boilers and air tanks in industrial locomotives] Pravila ustroistva i bezopasnoi ekspluatatsii parovykh kotlov i vozdushnykh reservuarov parovozov promyshlennykh predpriiatii. Obiazatel'ny dlia vsekh ministerstv, vedomstv i sovnarkhozov. Moskva, Ugletekhizdat, 1958. 25 p. (MIRA 12:7)

1. Russia (1917- R.S.F.S.R.) Komitet po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru. (Locomotives)

KONDRASHOV, A.M., inzh.

Improve safe operation of boiler units. Bezop.truda v prom. 5 no.9:11 S '61. (MIRA 14:10)
(Boilers--Safety measures)

OKOROKOV, A.A., otv.red.; MOROZOV, M.P., red.; GUTOROV, V.G., red.; ZHILYAYEV, A.V., red.; KONDRASHOV, A.M., red.; USHAKOV, P.N., red.; MAGAZINER, S.I., red.izd-va; SHKLYAR, S.Ia., tekhn.red.

[Rules for the installation and safe operation of elevators] Pravila ustroistva i bezopasnoi ekspluatatsii liftov. Izd.3. Moskva, Ugletekhizdat, 1959. 71 p.

(MIRA 14:6)

1. Russia (1923- U.S.S.R.) Komitet po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru. (Elevators)

KASATKIN, V.N., inzh.; ZHILYAYEV, A.V.[deceased]; KONDRASHOV, A.M., inzh.; OKOROKOV, A.A., inzh.; USHAKOV, P.N., inzh.; GURVICH, S.M.; MOROZOV, M.P., red.; AYZENSHTAT, I.I., red. [deceased]; KORIKOVSKIY, I.K., red.; VORONIN, K.P., tekhn. red.; LARIONOV, G.Ye., tekhn. red.

[Handbook on boiler inspection] Spravochnik po kotlonadzoru. Izd.3., perer. i dop. Pod obshchei red. M.P.Morozova. Moskva, Gos. energ.izd-vo, 1961. 688 p. (MIRA 15:2)
(Boiler inspection) (Hoisting machinery)

MOROZOV, M.P., red.; GUTOROV, V.G., red.; GRINBOYM, S.M., red.; ZHILYAYEV, A.V., red.; KONDRASHOV, A.M., red.; LITVINOV, D.A., red.; TATARENKO, V.A., red.; VOLKOV, V.A., red. izd-va; MINSKER, L.I., tekhn. red.

[Regulations for the manufacture and safe operation of high-pressure vessels; mandatory for all ministries and departments] Pravila ustroistva i bezopasnoi ekspluatatsii sosudov, rabotaiushchikh pod davleniem; obiazatel'ny dlia vsekh ministerstv i vedomstv. Izd.4. Moskva, Gosgortekhizdat, 1961. 79 p. (MIRA 15:10)

1. Russia (1923- U.S.S.R.)Komitet po nadzoru za bezopasnym vedeniem rabot v promyshlennosti i gornomu nadzoru.
(Presure vessels)

VARFOLOMEYEV, V.V., inzh.; KONDRASHOV, A.M., inzh.; LASUNOV, N.A., inzh.; SEN'KIN, Ye.G., inzh.; SIGALOV, L.B., inzh.

[Failures in boiler inspection systems and measures for preventing them; informational letter] Avarii na ob"ektakh kotlonadzora i mery po ikh preduprezhdeniiu; informatsionnoe pis'mo. Izd.2. Moskva, Nedra, 1965. 173 p. (MIRA 18:6)

1. Russia (1917- R.S.F.S.R.) Gosudarstvennyy komitet po nadzoru za bezopasnym vedeniem rabot v promyshlennosti i gornomu nadzoru.

MOROZOV, M.P., red.; GUTOROV, V.G., red.; ZHILYAYEV, A.V., red.; KONDRASHOV, A.M., red.; OKOROKOV, A.A., red.; USHAKOV, P.N., red.; OKOROKOV, A.A., otv. red.; VOLKOVA, V.A., red. izd-va; BOLDYREVA, Z.A., tekhn. red.

[Regulations for the installation and safe operation of elevators; mandatory for all ministries and departments] Pravila ustroistva i bezopasnoi ekspluatatsii liftov; obiazatel'ny dlia vsekh ministerstv i vedomstv. Izd. 4. Moskva, Gosgortekhizdat, 1961. 71 p. (MIRA 15:11)

1. Russia (1923- U.S.S.R.)Komitet po nadzoru za bezopasnym vedeniem rabot v promyshlennosti i gornomu nadzoru.
(Elevators--Laws and regulations)

KONDRASHOV, A.M., inzh.; LASUNOV, N.A., inzh.; SIGALOV, L.B., tekhn. red.; VOLKOVA, V.A., red.izd-va; PRONINA, N.D., tekhn. red.

[Accidents and accident prevention in areas of boiler inspection] Avarii na ob"ektakh kotlonadzora i mery po ikh predupreszhdeniiu; informatsionnoe pis'mo. Moskva, Gosgortekhizdat, 1962. 87 p. (MIRA 16:4)

1. Russia (1917- R.S.F.S.R.)Gosudarstvennyy komitet po nadzoru za bezopasnym vedeniem rabot v promyshlennosti i gornomu nadzoru. (Boiler inspection)

KONDRASHOV, A.M.

Urgent objectives of boiler inspectors. Bezop.truda v prom. 7 no.3:1-3 Mr '63. (MIRA 16:3)

1. Gosudarstvennyy komitet pri Sovete Ministrov RSFSR po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru. (Boiler inspection)

21(8),21(7)

AUTHORS: Broder, D. L., Kutuzov, A. A., Kondrashov, A. P.

SOV/89-6-5-19/33

TITLE: The Dependence of the Removal Cross Sections of H_2O, B_4C, C, Fe, Pb on the Energy of Neutrons (Zavisimost' secheniy vyvedeniya H_2O, B_4C, C, Fe, Pb ot energii neytronov)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 5, pp 578-581 (USSR)

ABSTRACT: By means of the removal cross section it is comparatively easy to calculate a shield consisting of a mixture of water and various elements. The removal cross sections were measured for 4 and 14.9 Mev neutrons ($D(d,n)He^3$ and $T(d,n)He^4$-reactions), for which purpose not water but boron carbide was used as the principal component. The measuring apparatus consisted of 3 cylindrical tanks (diameter 100 cm, thickness in the direction of the deuteron beam 115 cm). The first was filled with boron carbide (1.1 g/cm^3), which contained the neutron source in a special channel. A second and a third tank were connected with the first. During removal cross section measurement the material to be investigated

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took the place of the third tank. The fission chambers, which contain Th^{232}, are used as neutron detectors in a number of channels provided for this purpose. The channels not in use are enclosed in aluminum shells which are filled with boron carbide. The material to be investigated is filled into boxes (cross section 71.100 cm) of 9 cm thickness. The thickness of the lead plates is, however, 9 and 18 cm respectively. Measuring results:

material	density g/cm³	removal cross section E_n = 4 Mev	E_n = 14.9 Mev
H_2O	1	0.165±0.008	0.084±0.004
B_4C	1.67	0.083±0.003+)	0.058±0.002+)
Fe	7.83	0.169±0.007	0.137±0.005
Pb	11.3	0.113±0.005	0.097±0.005

+) from removal cross section measurements for boron carbide and graphite, corresponding to the reciprocal relaxation

lengths at such distances, which correspond to 8-15 free lengths of paths of neutrons in B_4C and C. The results obtained are compared with those of 5 other publications (table and diagrams), and satisfactory agreement was found. The method of removal cross sections may be extended also to calculation of fast neutron distribution in materials containing other light elements instead of hydrogen.
Professor A. K. Krasin and Candidate of Physico-mathematical Sciences V. V. Orlov acted as advisers. G. N. Deryagin, N. I. Dudkin, A. P. Klimov, V. G. Liforov, Z. S. Blistanova, A. I. Chusov, and V. S. Tarasenko assisted in experimental work. There are 2 figures, 1 table, and 7 references, 4 of which are Soviet.

SUBMITTED: January 21, 1959

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77216
SOV/89-8-1-10/29

AUTHORS: Broder, D. L., Kondrashov, A. P., Kutuzov, A. A., Lashuk, A. I.

TITLE: Effect of Layers Containing Boron on the Yield of Secondary Gamma Radiation. Letter to the Editor.

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 1, pp 49-51 (USSR)

ABSTRACT: Since in most cases the size and shape of the reactor shielding is determined by the amount of hard secondary gamma radiation, the authors investigated the possibility of reducing this amount by capturing in boron carbide the thermal neutrons producing the radiation. Neutrons captured in boron cause soft γ-rays of approximately 0.5 mev, while neutrons captured in other building materials, particularly steel, produce high energy γ-radiation. The geometry of the experiment is given in Fig. 1.

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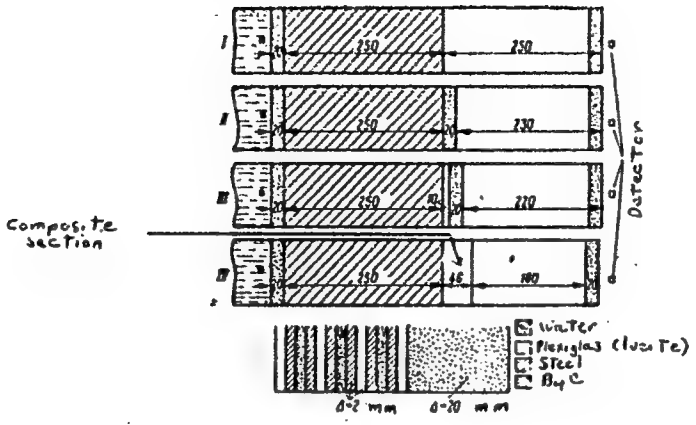

Fig. 1. Geometry of the experiment.

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The cross section of the prism was 710 x 710 mm, and the steels under investigation were St-3 and stainless steel IKh18N9T. The Po- α - Be source of $2 \cdot 10^7$ neutrons/sec strength was located in the water shielding in front of steel. Both the steel and plexiglas (lucite) had channels for indicator probes. Neutron distribution was determined using circular foils of indium 20 mm in diameter, enclosed sometimes in cadium containers. Figure 2 shows the neutron distribution in steel St-3.

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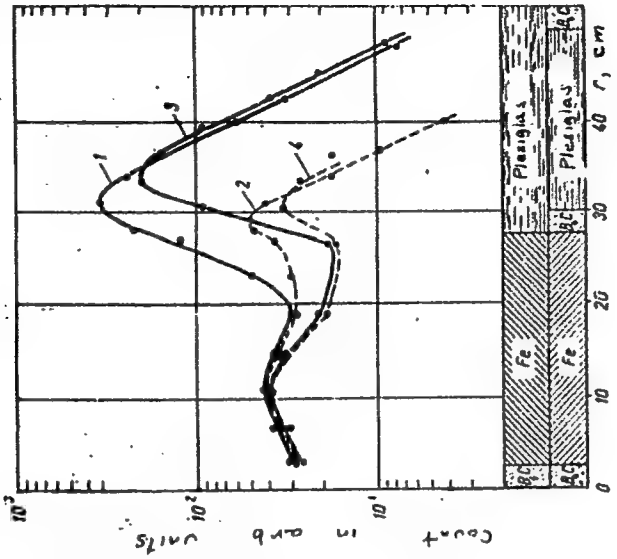

Card 4/9 Fig. 2. See Card 5/9 for Caption

See Card 4/9 for Fig. 2.

Fig. 2. Spacial distribution of neutrons in St-3 steel and plexiglas (lucite) prism: (1) indium measurements (no B_4C layer); (2) measurements with indium in cadmium (no B_4C layer); (3) indium measurements (between steel and plexiglas is placed a layer of B_4C 20 mm thick and of density 1.1 gm/cm^3); (4) measurements with indium in cadmium (between steel and plexiglas is placed a layer of B_4C 20 mm thick and of density 1.1 gm/cm^3).

Spectrum of γ-rays was measured by means of a NaJ(Tl) single-crystal γ-spectrometer. The diameter and height of the crystal were 40 mm. Resolving power for the Zn^{65} line was 11%. The analysis of impulses was performed by means of a 128-channel amplitude analyzer

with ferrite core memory. Figure 3 and 4 show the measured γ-spectra.

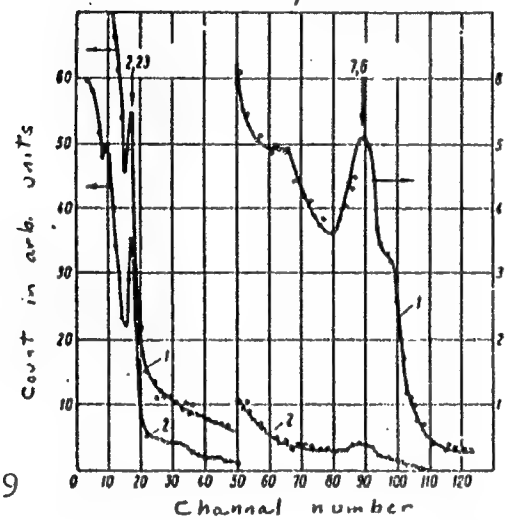

Fig. 3. Spectrum of γ-quanta produced in the St-3 steel prism: (1) No B_4C layer; (2) between steel and plexiglas (lucite) is placed a layer of B_4C, 20 mm thick and density 1.1 gm/cm^3.

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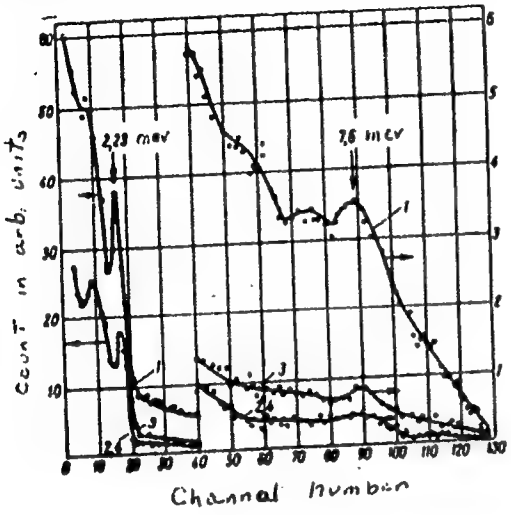

Fig. 4. Spectrum of γ-quanta produced in a prism from stainless steel IKh18N9T: (1) No B_4C layer; (2,4) between steel and plexiglas is placed a layer of B_4C (alternative II, Fig. 1), or a composite section with plexiglas, St-3 and B_4C (alternative IV, Fig. 1); (3) between steel and plexiglas is placed a layer of plexiglas and a layer of B_4C(alternative III, Fig. 1).

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In the case of the St-3 steel, the intensity of the 7.6 mev γ-rays is reduced 13.4 times. In the case of the steel 1Kh18N9T the reduction for the same energy is 7.8 times. This steel contains chromium and nickel, and produces some additional γ-lines. The authors calculated the decrease of the neutron capture of γ-radiations from St-3 after introduction of the boron carbide between the steel and plexiglas, using the measured neutron distribution from Fig. 2. The spectrum of neutrons in steel used in this calculation was determined approximating a half-infinite steel block with an absolutely "black" middle boundary. Corrections were made for the self-shielding of the detectors at the 1.44 ev resonance. The computed decrease of secondary γ-quanta of 9.5 times is in good agreement with the experiment on St-3. N. A. Aleshin, V. S. Borisov, G. V. Rykov, and E. V. Shestopalov were helpful during the work. There are 4 figures; and 2 references, 1 Soviet, 1 U.S. The U.S.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000824210007-7"

Effect of Layers Containing Boron on the Yield of Secondary Gamma Radiation. Letter to the Editor

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reference is: Reactor Physics Constants, ANL-5800 (1958).

SUBMITTED: August 3, 1959

32993
S/641/61/000/000/020/033
B108/B102

21.52250
26.2240

AUTHORS: Broder, D. L., Kondrashev, A. P., Kutuzov, A. A.

TITLE: Spatial neutron distribution in mixtures of boron carbide with iron and lead

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 263 - 277

TEXT: The results of experiments given in this paper are to verify the possibility of calculating the spatial distribution of fast neutrons in media containing boron carbide. The fast neutrons were obtained from interaction of 1-Mev deuterons with heavy ice (4-Mev neutrons) and of 400-kev deuterons with tritium adsorbed on zirconium (14.9-Mev neutrons). These neutron sources were placed before 9 steel tanks filled with boron carbide and each containing a thin-walled cavity in the middle to place the detector in. The free cavities were filled with boron carbide. In some of the experiments, tank 2 or tank 2 and 3 were replaced by laminated iron or lead blocks. Other experiments provided steel and lead plates between the tanks. Since the tanks were CT-30 (ST-30) steel, all the measurements were made with boron carbide "containing" 3.8% by volume of

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Spatial neutron distribution...

iron. The results showed that iron and lead have similar removal cross sections. Substances with small inelastic scattering cross sections, as boron carbide, have greater removal cross sections in water than in other moderators not containing hydrogen. The ratio of intermediate and slow neutrons ($E_n < 1.5$ Mev) to the fast neutrons was calculated. It was found to be 3.56 for 4-Mev neutrons and 2.58 for 14.9-Mev neutrons. The experimental values were lower and closer to each other. This is due to a lower sensitivity of the U^{235} fission chamber at neutron energies $E > 100$ kev. The authors thank Professor A. K. Krasin, V. V. Orlov, Candidate of Physical and Mathematical Sciences, G. N. Deryagin, N. N. Dudkin, A. P. Klimov, V. G. Liforov, Z. S. Blistanova, A. I. Chusov, V. S. Tarasenko, and R. G. Bulycheva for help. There are 10 figures, 1 table, and 11 references: 4 Soviet and 7 non-Soviet. The four references to English-language publications read as follows: Blizard E. P. Ann. Rev. Nucl. Sci., 5, 73 (1955); Doldstein H. The attenuation of gamma rays and neutrons in reactor shield, NDCA, N. Y., 1957; Burgeois I. et al. Methods and Experimental Coefficients Used in the Computation of Reactor Shielding. A/Conf 15/p/1190 France, 1958; Duggal V., Puri S., J. Appl. I. Phys., 29, 675 (1958).

Card 2/2

33234
S/089/62/012/002/005/013
B102/B138

26.2240

AUTHORS: Broder, D. L., Kondrashov, A. P., Kutuzov, A. A., Naumov, V. A., Sergeyev, Yu. A., Turusov, A. V.

TITLE: Multigroup methods of calculating biological shielding

PERIODICAL: Atomnaya energiya, v. 12, no. 2, 1962, 129 - 139

TEXT: The spatial energy distribution for biological shields is calculated for a source at a distance of 40 cm. Seven- and ten-group methods are used and the calculations are made in diffusion-age and diffusion approximations, respectively. As the lower limits of the groups the following energies were chosen for the seven-group method: $1.5\cdot10^6$, $9\cdot10^6$, $4.5\cdot10^5$, $3\cdot10^3$, 3.3, E_{lim} and 0 ev, and for the ten-group method: $4\cdot10^6$, $2.5\cdot10^6$, $1.5\cdot10^6$, $7\cdot10^5$, $3\cdot10^5$, $4\cdot10^4$, $1\cdot10^3$, 6.7, E_{lim} and 0 ev. Spectrum and group constants are calculated for both groups and the results are compared graphically with experimental ones. The experiments were made with the critical assembly of a water moderated

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Multigroup methods of calculating...

reactor with a water side reflector. The shield investigated formed the bottom reflector. Three types of shields were investigated, consisting of several layers of various kinds of steel, lead, boron carbide and polyethylene. The neutron flux in the assembly was measured with a copper foil, the thermal-neutron flux in the core with a copper indicator and an U^{235} fission chamber, and, in the experimental assemblies, with a copper indicator in a Cd container. Comparison between theoretical and experimental results permits the following conclusions: 1) Both the multigroup methods, and the group-constants chosen, are suitable for calculating the spatial distribution of neutron energy in shields containing Fe, Pb and H. 2) For shielding systems containing B the agreement with experiment is within 20% error limits. 3) The seven-group method can also be used to determine the spatial distribution of fast neutrons which is characteristic of delayed-neutron flux distribution. For a source emitting 4-Mev neutrons and with large shield thicknesses, the ten-group results differ from the experimental ones by not more than 30%. N. A. Gushchina, L. V. Marchenko, Z. P. Sokolova, Z. S. Blistanova and A. M. Astakhova took part in the calculations, N. A. Aleshin and R.

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Multigroup methods of calculating...

G. Bulycheva in the experiments. The reactor team members I. G. Morozov, Ye. I. Inyutin, V. K. Labuzov and N. G. Uvarov are thanked for their work. There are 4 figures, 1 table, and 12 references: 7 Soviet and 5 non-Soviet. The reference to the English-language publication reads as follows: D. Hughes, L. Harvey. Neutron cross section, 1958.

SUBMITTED: April 17, 1961

Card 3/3

BRODER, D.L.; KONDRASHOV, A.P.; KUTUZOV, A.A.; NAUMOV, V.A.; SERGEYEV, Yu.A.; TURUSOV, A.V.

Use of multigroup methods for computing a biological shield. Atom. energ. 12 no.2:129-139 F '62. (MIRA 15:1)
(Shielding (Radiation))

ACCESSION NR: AT4019032 S/0000/63/000/000/0065/0074

AUTHOR: Broder, D. L.; Kondrashov, A. P.; Kutuzov, A. A.; Naumov, V. A.; Sergeyev, Yu. A.; Turusova, A. V.

TITLE: An experimental justification of multigroup methods for the computation of biological shielding

SOURCE: Voprosy* fiziki zashchity* reaktorov; sbornik statey (Problems in physics of reactor shielding; collection of articles). Moscow, Gosatomizdat, 1963, 60-74

TOPIC TAGS: nuclear reactor, reactor shielding, neutron scattering, removal cross section, biological shielding, neutron, neutron distribution, multigroup method, diffusion approximation

ABSTRACT: The authors note that the computation of biological shielding involves the determination of the space-energy distributions of the neutrons in media containing light and heavy nuclei. A number of methods, based in one way or another on the solution of kinetic equations, have been developed to meet this need. Several of them are briefly examined and criticized. In the present article, two methods of solving the problem are considered: a 10-group and a 7-group method in a diffusion and diffusion-age approximation,

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respectively. The applicability of this kind of approximation for shielding computations is not evident if strong absorption is present. Hydrogen slowing also complicates the use of these methods to a considerable degree. Neutron scattering with non-elastic collisions is isotropic, while the anisotropy of elastic scattering may be corrected by introducing the transport section of the scattering. At lower energies, elastic scattering becomes more isotropic and absorption processes begin to play an important role only in the lower groups. On the basis of this circumstance, an attempt was made to justify experimentally the applicability of the methods of computation discussed in this article to the space-energy distribution of neutrons at any distance from the source. The 7-group method was developed for the purpose of introducing certain corrections and improvements into the calculations of the fast neutron groups. The basic idea resolves itself to the assignment of the spatial distribution of the group of fast neutrons with energy E > 1.5 Mev by the semiempirical metho of "removal cross sections" with subsequent computation in a diffusion-age approximation. The authors note that it has been demonstrated that the difference in the results of calculation in the age approximation and the exact solution even for water, at such distances from the source as justify an age approch, does not exceed 30%. This fact gives rise to the hope

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that the results of the computations described in this article will be favorable. The refinements described in the paper deal only with the neutrons with energies above 1.5 Mev, since it is these neutrons, as a rule, which determine the spatial distribution of the neutron streams. Both computation methods were applied to the computation of three varieties of shielding, of rather small thickness, both with and without boron. The purpose of the introduction of the boron was to study the problems of the applicability of the diffusion and diffusion-age approximations to the computation of shielding with different neutron absorption in the thermal and superthermal regions. These same varieties were investigated experimentally. According to the original intention, the simplicity of the method was to be expressed in the relatively small number of energy groups. However, the transition from a larger number of groups to a smaller was natural and, for this reason, 7- and 10-group systems of constants were developed. In the first sections of the article, the selection of groups in the 7- and 10-group methods and the neutron spectrum in the 10-group method are considered. Basic equations and group constants for the 10-group method are presented and discussed in a further section, after which the results of the 10-group computations are analyzed. Only after this are the basic equations and group constants of the 7-group method derived. The experimental check of the computations was made with a reactor having a water decelerator. Test conditions are described in the article. The authors

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ACCESSION NR: AT4019032

found that both the 7- as well as the 10-group method and the selected systems of group constants may be used to compute the space-energy distributions in mixtures of iron with water and lead at the thickness considered in the study. These methods yield satisfactory results (within 20%) for boron-containing media; for example, in boron steels. In the present work, a direct experimental confirmation of the greater accuracy of the 7-group method in comparison with the 10-group technique was therefore not obtained. Orig. art. has: 17 formulas and 8 figures.

ASSOCIATION: none

SUBMITTED: 14Aug63 DATE ACQ: 27Feb64 ENCL: 00

SUB CODE: NP NO REF SOV: 006 OTHER: 005

Card 4/4

ACCESSION NR: AT4019057 S/0000/63/000/000/0234/0242

AUTHOR: Broder, D. L.; Kondrashov, A. P.; Naumov, V. A.; Popkov, K. K.; Turusova, A. V.

TITLE: Heat release in the shield and body of a reactor

SOURCE: Voprosy* fiziki zashchity* reaktorov; sbornik statey (Problems in physics of reactor shielding; collection of articles). Moscow, Gosatomizdat, 1963, 234-242

TOPIC TAGS: nuclear reactor, reactor shielding, heat release, heat emission, reactor heat dissipation

ABSTRACT: A considerable amount of energy is liberated in the active zone of a reactor due to the long-range neutron and γ radiation. This excess of energy is particularly important in the construction of water shielded reactors. Consequently, the following processes must be considered in the calculation of heat release: (1) γ radiation in the active zone of the reactor; (2) γ radiation arising from the capture of neutrons; and (3) α-particles from the B^{10} $(n\alpha)Li^7$ reaction. The γ radiation thus comes from five processes: (a) Flux of γ rays from the active zone:

$$\varphi_\gamma^a = \frac{\overline{q_\gamma^a}}{2\mu_{a.a}} \sum_{j=1} A_j^{F*} \left\{ E_3 \left[(1+a_j^{F*}) \sum_i \mu_i x_i \right] - E_3 \left[(1+a_j^{F*}) \left(\sum_i \mu_i x_i + 1 \right) \right] \right\}, \quad (1)$$

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(b) Flux of γ radiation from neutron capture in the shield and body of the reactor;

$$\varphi^{b}_{\gamma h} = \frac{q^{b}_{\gamma h}}{2\mu^{Fe}} \sum_{j=1}^{2} \frac{A_j^{Fe}}{1+\alpha_j^{Fe}} \left\{ E_2\left[(1+\alpha_j^{Fe})\sum_i \mu_i x_i\right] - E_2\left[(1+\alpha_j^{Fe})\left(\sum_i \mu_i x_i + \mu_S d\right)\right]\right\}, \quad (2)$$

$$\varphi^{b}_{\gamma h} = \varphi^{b}_{\gamma h}(1) + \varphi^{b}_{\gamma h}(2) \quad (3a)$$

$$\varphi^{b}_{\gamma h}(1) = \frac{q^{b}_{\gamma h}(1)}{2\Sigma_1} \sum_{j=1}^{2} A_j^{Fe} \left\{ e^{-\Sigma_1\left(d+\frac{\sum \mu_i x_i}{\mu_S}\right)} E_1\left\langle\left[(1+\alpha_j^{Fe}) - \frac{\Sigma_1}{\mu_S}\right]\sum_i \mu_i x_i\right\rangle - e^{-\Sigma_1 d} E_1\left[(1+\alpha_j^{Fe})\sum_i \mu_i x_i\right] - e^{-\Sigma_1\left(d+\frac{\sum \mu_i x_i}{\mu_S}\right)} E_1\left\langle\left[(1+\alpha_j^{Fe}) - \frac{\Sigma_1}{\mu_S}\right] \times \left(\mu_S d + \sum_i \mu_i x_i\right)\right\rangle + E_1\left[(1+\alpha_j^{Fe})\mu_S d + \sum_i \mu_i x_i\right]\right\};$$

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$$\varphi^{b}_{\gamma h}(2) = -\frac{q^{b}_{\gamma h}(2)}{2\Sigma_2}\sum_{j=1}^{2} A_j^{Fe}\left\{e^{\Sigma_2\left(d+\frac{\sum\mu_i x_i}{\mu_S}\right)}E_1\left\langle\left[(1+\alpha_j^{Fe})+\frac{\Sigma_2}{\mu_S}\right]\sum_j \mu_i x_i\right\rangle -\right.$$

$$-e^{\Sigma_2 d}E_2\left[(1+\alpha_j^{Fe})\sum_i \mu_i x_i\right] - e^{\Sigma_2\left(d+\frac{\sum\mu_i x_i}{\mu_S}\right)}E_1\left\langle\left[(1+\alpha_j^{Fe})+\frac{\Sigma_2}{\mu_S}\right]\times\right. \quad (3b)$$

$$\left.\left.\times\left(\mu_S d+\sum_i \mu_i x_i\right)\right\rangle + E_1\left[(1+\alpha_j^{Fe})\left(\mu_S d+\sum_i \mu_i x_i\right)\right]\right\},$$

(c) Flux of γ rays from the radiative capture of neutrons

$$\varphi^{c}_{\gamma} = \frac{q^{c}_{\gamma}}{2\mu_S}\sum_{j=1}^{2}\frac{A_j}{1+\alpha_j}\{2 - E_2[(1+\alpha_j)\mu_S x] - E_2[(1+\alpha_j)\mu_S(d-x)]\}, \quad (4)$$

$$q^{c}_{\gamma}(x) = q^{c}_{\gamma}(1)\,e^{-\Sigma_1 x}; \quad (5)$$

(d) Flux of γ rays due to neutron capture in the water in the space between the shielding;

$$\varphi^{d}_{\gamma h} = \frac{\overline{q^{c}_{\gamma}}\,d}{2}\sum_{j=1}^{2} A_j^{Fe} E_1\left[(1+\alpha_j^{Fe})\sum_i \mu_i x_i\right]. \quad (6)$$

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(e) Flux of captured γ radiation in the water in the reactor

$$\varphi_{\gamma}^{c} = -\frac{q_0}{2\Sigma}\sum_{j=1}^{3} A_j^{Fe}\left\{e^{-\Sigma d}E_1\left[(1+\alpha_j^{Fe})\sum_i \mu_i x_i\right] - \right.$$
$$-e^{-\left[\frac{(1+\alpha_j^{Fe})\sum_i \mu_i x_i}{\mu_S}+d\right]\Sigma}E_1\left[(1+\alpha_j^{Fe})\sum_i \mu_i x_i\left(1-\frac{\Sigma}{\mu_S}\right)\right] - \quad (7)$$
$$-E_1\left[(1+\alpha_j^{Fe})\sum_i \mu_i x_i + \mu_S d\right] +$$
$$\left.+e^{-\left[\frac{(1+\alpha_j^{Fe})\sum_i \mu_i x_i}{\mu_S}+d\right]\Sigma}E_1\left\langle\left[(1+\alpha_j^{Fe})\sum_i \mu_i x_i + \mu_S d\right]\left(1-\frac{\Sigma}{\mu_S}\right)\right\rangle\right\}.$$

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ACCESSION NR: AT4019057

The contribution of α radiation is given by:

$$Q_{\alpha}(r) = kE_{\alpha}\sum_{j=1}^{7} n v_j(r)\,\Sigma_j^{\alpha}, \quad (8)$$

The experimental determination of the heat release in a reactor was performed by the ionization method, which was found to be more sensitive than the calorimetric method in the case of a zero-power reactor. The energy loss in the solid medium (heat release) is related to the energy loss in the gaseous medium by

$$\frac{(-dE/dx)_{TB}}{(-dE/dx)_{rae}} = \frac{q}{l_V W}, \quad (9)$$

(L. H. Gray, Proc. Roy. Soc. A156, 578 (1936).) The theoretical and experimental results showed satisfactory agreement. Orig. art. has: 3 figures and 17 formulas.

ASSOCIATION: none

SUBMITTED: 14Aug63 DATE ACQ: 27Feb64 ENCL: 00

SUB CODE: NP NO REF SOV: 002 OTHER: 004

Card 5/5

BRODER, D.L.; KONDRASHOV, A.P.; KUDRYAVTSEVA, A.V.

Some methods for reducing the fluxes of penetrating secondary gamma radiation. Atom. energ. 19 no.5:444-445 N '65.
(MIRA 18:12)

L 05067-67 EWP(t)/ETI IJP(c) JD/JG/JR/GD

ACC NR: AT6027935 SOURCE CODE: UR/0000/66/000/000/0184/0190

AUTHOR: Broder, D. L.; Dergachev, N. P.; Kondrashov, A. P.; Zhiritskiy, V. K.; Kozlov, V. N.; Lavdanskiy, P. A.

ORG: None

TITLE: Investigation of the shielding properties of concrete which contains boron

SOURCE: Voprosy fiziki zashchity reaktorov (Problems in physics of reactor shielding); sbornik statey, no. 2. Moscow, Atomizdat, 1966, 184-190

TOPIC TAGS: concrete, boron, radiation shielding, fast neutron, gamma radiation, radiative capture

ABSTRACT: The authors study the shielding properties of concrete containing various concentrations of boron and various quantities of hydrogen. A beam of fast neutrons issuing from a horizontal channel in the shielding of the BR-5 reactor was used in these experiments with the arrangement shown in the figure. The diameter of the beam was 40 mm with a neutron density of 10^9 neutr/cm^2·sec. The particle detector was a fission chamber with Th^{232} and indicators made of red phosphorous. The effective threshold of this chamber is close to 1.5 Mev. Indium indicators were used for attenuated streams of thermal and intermediate neutrons. The concrete specimens were made up of 13 plates on a special stand with overall dimensions of 1000×1000×1300 mm. The first plate in this assembly was made with a recess to fit flush against the reactor

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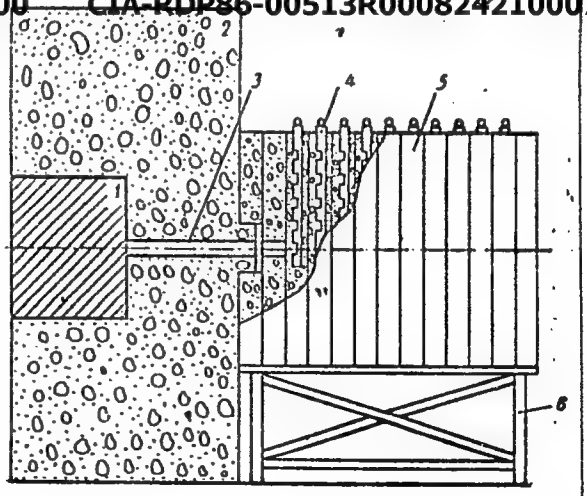
shielding and reduce neutron leakage. The detectors were placed in each plate in special vertical channels measuring 50 mm in diameter with a depth of 600 mm. Seven types of concrete were tested with various concentrations of boron and water. The chemical compositions and boron-water concentrations of the various types are tabulated together with their densities. The neutron flux was measured at various heighths in the experimental channels. The resultant data are used for calculating the relaxation length for fast, thermal and intermediate neutrons in 70-85 cm of concrete. The experimental relaxation lengths for fast neutrons agree satisfactorily with the theoretical data calculated on the basis of the removal cross section method. The shielding properties of concrete with respect to fast neutrons improve as the water concentration in the concrete is increased from 8 to 24 wt.%. An increase in the boron concentration of the concrete results in a considerable reduction in the intensities of thermal and intermediate neutrons and consequently in the production of capture γ-radiation. The



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ACC NR: AT6027935

boron concentration should not be increased past 3-4 wt.% since this results in a noticeable reduction in the shielding properties of the concrete. Orig. art. has: 6 figures, 3 tables.

SUB CODE: 18, 11/ SUBM DATE: 12Jan66/ ORIG REF: 004/ OTH REF: 002

Card 3/3

MITIN, V.F., kand.tekhn.nauk; BOGATOV, Ye.A., inzh.; KONDRASHOV, A.S., inzh.

MZD-1 machine for laying drain pipes. Stroi. i dor. mash. 10 no.7:8 Jl '65. (MIRA 18:8)

PANKRATOV, N.S., kand. tekhn. nauk; POKAMESTOV, V.V.; LUK'YANOV, A.D.; GAVRILOV, Yu.M.; IVANOV, Yu.I.; KONDRASHOV, A.S.; MAYEVSKAYA, K.T.; MALKOV, L.M.; FOMIN, V.K.; KOLOTUSHKIN, V.I., red.; LARIONOV, G.Ye., tekhn. red.

[New equipment and technology of peat-bog preparation and the winning of granulated peat] Novaia tekhnika i tekhnologiia bolotno-podgotovitel'nykh rabot i dobychi granulirovannogo torfa. Moskva, Gos. energ. izd-vo, 1961. 86 p. (MIRA 15:2)

1. Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut torfyanoy promyshlennosti. Direktor filiala Vsesoyuznogo nauchno-issledovatel'skogo instituta torfyanoy promyshlennosti (for Pankratov).

(Peat bogs) (Peat machinery)

BOGATOV, Ye.A., inzh.; KONDRASHOV, A.S., inzh.

MZD-1 machine for the laying of tile drainage pipes. Gidr. i mel. 17 no.11:36-39 N '65. (MIRA 18:11)

1. Kalininskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta torfyanoy promyshlennosti.

KONDRASHOV, A.V.

For further improvement of the economic and financial work in construction organizations. Transp. stroi. 8 no.9:1-3 S '58. (MIRA 11:10)

1. Chlen Kollegii Ministerstva transportnogo stroitel'stva.
(Construction industry--Costs)